CLAIMS

1. A method by which a fluid heat reactive resin system is formulated and configured below the melting temperature of a base resin and cured comprising the steps of:

introducing the base resin and a curing agent for the resin into a pressure vessel;

introducing a liquefiable gas into the pressure vessel;

adjusting the temperature and pressure within the vessel to the supercritical range of the liquefiable gas;

solvating the resin and dispersing the curing agent in the gas that is in the supercritical range;

slowly reducing the pressure within the vessel to essentially atmospheric pressure;

discharging a fluid heat reactive resin mixture from the vessel.

2. A method according to Claim 1 wherein the discharged fluid heat reactive resin system is coated over a substrate.

3. A method according to Claim 1 wherein the discharged fluid heat reactive resin system is converted into a powder.

4. A method according to Claim 2 wherein the fluid heat reactive resin is cured at low temperatures below about 140^0 C.

5. A method according to Claim 1 wherein other ingredients selected from the class consisting of curing agents, pigments, additives are introduced into the pressure vessel and dispersed in the solvated resin.

6. A method according to Claim 1 wherein the fluid heat reactive resin is configured by calendering.

7. A method according to Claim 1 wherein the fluid heat reactive resin is configured in a mold.

8. A method according to Claim 1 wherein the fluid heat reactive resin system is maintained in a fluid state for a transient processing time by the inclusion of a plasticizer or high boiling solvent in the heat reactive system.

9. A process according to Claim 1 in which enough pressure is maintained in the vessel when the pressure is reduced to aid in discharging the fluid heat reactive resin.

10. A process according to Claim 1 wherein the resin has a molecular weight (M_n) in the range of 400-100,000.

11. A process according to Claim 1 wherein the gas is carbon dioxide.

12. A process according to Claim 1 wherein two pressure vessels are used in tandem, alternately transferring the liquefied gas from one vessel to the other.

13. A resin dispersion prepared by:

charging a resin mixture and a plasticizer for the resin into a pressure vessel;

introducing a liquefiable gas into the pressure vessel and adjusting the temperature and pressure within the pressure vessel to a supercritical range for the liquefiable gas;

solvating the resin and dispersing the resin mixture in the liquefiable gas in the supercritical range;

slowly reducing the pressure in the vessel to approximately atmospheric pressure;

discharging an unfoamed fluid resin dispersion from the vessel;

configuring the fluid resin dispersion; and

curing the configured resin dispersion at a temperature below about 140^0 C.

14. A method according to Claim 13 wherein the plasticizer is present in an amount between about 1 wt% and 25 wt %.

15. A method according to Claim 13 wherein the plasticizer is a high boiling solvent.

16. A method according to Claim 13 wherein fluid resin dispersion is configured over a substrate.

17. A method according to Claim 16 in which the substrate is wood, plastic or paper.

18. A method according to Claim 13 wherein the fluid resin dispersion is configured by spraying it over a substrate.

19. A method according to Claim 13 wherein the fluid resin dispersion is configured by applying it to a substrate by dip coating.

20. A method according to Claim 13 wherein the fluid resin dispersion configured by converting it into a powder.